



Email: enquiries@nstf.org.za | Tel: +27 12 841 3987 |
<https://www.nstf.org.za/>



NSTF e-Newsletter

S.E.T. for socio-economic growth

What you should know about science

Message from the NSTF Executive Director, Ms Jansie Niehaus

People are confused or convinced by what they are fed via social media. Especially now, in the time of Covid-19, technology has enabled reigning ignorance to go viral. They have to be told how science 'works' by credible sources, such as relatable role models. [Read the message.](#)



NSTF News

Twenty years of recognising youth excellence in physical science and mathematics

Every year there is an impressive number of matriculants who excel in physical science and mathematics. The [National Science and Technology Forum \(NSTF\)](#) has been celebrating these top learners who specifically go on to pursue studies in science, engineering, technology (SET) or medicine for the past 20 years. They are recognised at the prestigious [NSTF Awards](#), known as the 'Science Oscars of South Africa' for professionals in SET and innovation.

The public is mainly unaware that, while the absolute numbers of passes in physical science and mathematics may not be impressive, there are so many top performers. The NSTF is the only organisation that annually and nationally celebrates achievement in these two subjects only, without considering the aggregate or marks in the languages. The NSTF promotes SET, including mathematics and innovation among the [youth](#). This is important because:

- SET subjects open doors for learners to pursue fulfilling careers.
- The future of SET and innovation depends on young people being inspired to explore the subjects, study courses and exciting careers that exist already, and the new ones that will exist in future.

Two top performers from each province, a young man and woman, are selected by the NSTF for this honour. **The criteria for selection are:**

- Only learners who matriculated at public schools
- Who are first year students registered at South African universities
- Who are studying science-related (STEM) courses (mainly natural sciences, mathematics, engineering and medicine), and
- Who have 90% or higher for the average of their physical science and mathematics marks. Where there are two students who qualify, the one with the highest average of the two marks is selected. Where two students who qualify have the same average, both the students are selected for the programme.

Read the inspiring [interviews](#) with some of these young people.



2020/2021 NSTF-South32 Awards nominees announced

The [nominees](#) for the 2020/2021 [NSTF-South32 Awards](#) for excellence in science, engineering, technology (SET) and innovation in South Africa are about to be announced. Look out for the announcement in your mailbox, which will also be posted on the NSTF website. The finalists will be announced in May.

If you have any questions, please email awards@nstf.org.za.

Gala Event to celebrate the NSTF-South32 Awardees

Save the date of 29 July for the [gala event](#) of the 2020/2021 [NSTF-South32 Awards](#). The NSTF is planning to host both an online and gala dinner event. Details will follow

Discussion Forum news

Save the dates of 10-11 June 2021

The NSTF [Discussion Forum](#) to promote the NSTF's 2020 theme on **Plant Health** has been postponed to June this year. The invitation will be circulated in May. Subscribe to the [NSTF eNews](#) to receive news first-hand.

Also read about the work of the 2020 NSTF Special Annual Theme Award Winner for Plant Health, [Prof Michael Wingfield](#), Professor: Forestry and Agricultural Biotechnology Institute (FABI); and Adviser to the Executive, University of Pretoria. He won for his global recognition as a South African plant pathologist for a lifetime of contributions to the identification and management of plant diseases, as well as his education and mentorship of large numbers of plant pathologists and

soon.

The NSTF's theme for 2021 is **Creative Economy for Sustainable Development**, aligned with the United Nations' [International Year of Creative Economy for Sustainable Development](#). This will also be the theme of the Awards gala event.

Outreach activities

The NSTF [Share 'n Dare programme](#) forms part of the NSTF-South32 Awards. [NSTF Award winners](#) act as role models and ambassadors for science, engineering and technology (SET) and innovation. The winners share knowledge with youth and the public, inspiring young people to pursue studies and careers in SET and innovation.

The video of a Share 'n Dare activity that took place in Gauteng in February is now available:

- UN International Day for Women and Girls in Science Webinar Session at [Sci-Bono Discovery Centre](#) in Gauteng. Speaker: [Prof Refilwe Nancy Phaswana-Mafuya](#) (2016/2017 [TW Kambule-NSTF Award: Researcher](#)). View the [video](#) of the event and please share it with your contacts among educators and the youth.

entomologists globally.

The Discussion Forum under the auspices of [proSET](#) (the NSTF membership sector consisting of professional bodies and learned societies in science, engineering, technology (SET) and SET education) this year will be on **4IR Technologies and Connectivity**. It is scheduled for 9-10 September.

The Discussion Forum on the international theme **Creative Economy for Sustainable Development** is planned for 14-15 October. The NSTF aims to highlight initiatives that bridge the gap between creativity and science/technology, and to discuss significant societal issues relating to these.

There are many aspects that could be covered under these topics. If you have ideas of topics and speakers, please let Ms Gabriela Mankune know at enquiries@nstf.org.za.



STEMulator.org

Look out for an article on the [STEMulator.org](#) soon to be published in the [SAICE](#) magazine (SAICE is the South African Institution of Civil Engineering). Also be on the lookout for the competition for content submissions, which will be opened up to the whole membership base of the NSTF.

STEMulator.org attracts learners and students to the exciting world of science, technology, engineering, and mathematics (STEM). It provides a virtual world full of [animated content](#), from pumping hearts to turbines in power stations to excite and inform the youth, including [guidance on STEM subjects and careers](#).

The STEMulator is the flagship project of [proSET](#) (Professionals in Science, Engineering and Technology), one of seven [membership sectors](#) of the NSTF. proSET represents about 40 professional bodies and learned societies in South Africa.

Brilliant students

[Dumsane Joshua Nkosi](#) from Mpumalanga is one of the students recognised in the NSTF's 2019/2020 [Brilliant programme](#) for top marks in mathematics and physical science in the National Senior Certificate Examinations (Grade 12). He is studying mechatronic engineering at the University of Cape Town.

“Matriculants should try to get their marks as high as they can. Then they can be flexible and switch to any course they prefer.” - Dumsane Joshua Nkosi

Bursaries available

Find the latest news on bursaries in science, engineering and technology (SET) in the NSTF [Bursary Directory](#). Currently available are:

- [GrandWest Socio-Economic Development Fund](#) (Deadline: 30 April 2020)
- [FMCSA Ford Bursary](#) (Open)

Visit the bursary website for information on SET careers and [inspiring people](#) who work in these areas.



proSET (Professionals in science, engineering and technology) is a sector of the NSTF representing about 40 professional and learned societies. This section shares news about [members](#) and introduces new members of the [proSET sector](#).

- **The Grassland Society of Southern Africa**

The first issue of 2021 of *Grassroots*, the newsletter of the Grassland Society of Southern Africa ([GSSA](#)) has been published. Subscription is free. To read this issue of *Grassroots*, [click here](#).

- **The South African Academy of Engineering**

The South African Academy of Engineering ([SAAE](#)) has to date produced a series of four Advisory Notes on crucial issues to inform and support the decisions of all tiers of Government. The first of these Notes, which deals with the challenge of securing reliable supplies from the large systems that sustain our economy's water security – and thus the lives and livelihoods of all South Africans was sent to President Ramaphosa in May 2020. It highlights the strategic priorities and identifies opportunities for social partnership that will help to complement Government's limited human and financial resources. Advisory Note 4, dealing with the reasons why hydrological information is important, has been produced. [Read the full note](#).

- **Institute of Information Technology Professionals**

The Institute for Information Technology Professionals South Africa ([IITPSA](#)) is acknowledged as the preferred professional body for ICT professionals seeking critical

skills visas to work in South Africa, as highlighted in the latest draft of the South African Critical Skills List issued by the Department of Home Affairs. [Read more](#) (engineerit.co.za). IITPSA has also released the list of [finalists for the 2020 IITPSA President's Awards](#) (itweb.co.za). The 2020 awards, which were delayed by the COVID-19 lockdown and are themed "Excellence in Adversity", recognise IT professionals who excelled during a particularly challenging year.



SET-related policies currently open for public comment

Policies open for comment allow the science, engineering and technology (SET) community to keep track of the changing regulation environment.

- [National Education Policy Act: Curriculum and Assessment Policy Statement to make provision for Coding and Robotics Grades R-9](#). (Comment by 19 April 2021)
- [Standards Act: Standards matters](#). (Comment by 22 April 2021)
- [Plant Breeders' Rights Act: Receipt of applications for plant breeders' rights](#) (Comment by 23 April 2021)
- [Standards Act: Standards matters](#). (Comment by 30 April 2021)
- [National Environmental Management: Biodiversity Act: Revised National Biodiversity Framework 2019-2024](#). (Comment by 4 May 2021)
- [Petroleum Products Act: Regulations: Mandatory blending of biofuels with petrol and diesel and regulations regarding petroleum products specifications and standards](#). (Comment by 10 May 2021)
- [Pharmacy Act: South African Pharmacy Council: Pharmacist who provides pharmacists initiated management of antiretroviral therapy \(PIMART\) services](#) (Comment by 22 May 2021)

SET-related policy news

Some articles included in the section below are opinion pieces. The opinions expressed in these articles do not necessarily reflect the views of the NSTF Executive Committee, Directors, Secretariat or Members.

Energy

- [Is load shedding here to stay?](#) (energize.co.za)
- [Eskom's ageing infrastructure](#) (eNCA)
- [AfDB funds \\$530 million electricity project to expand renewable energy and regional connectivity](#) (infrastructurenews.co.za)
- [Mantashe unlocks R45bn renewables investments in SA](#) (itweb.co.za)
- [South Africa picks eight bidders for emergency power generation](#) (techcentral.co.za)

Environment

- [Marine Pollution: Notice to stakeholders](#) (gov.za)

- [SA remodels ageing coal plants with solar technology](#) (itweb.co.za)
- [SA unlikely to achieve UN's SDG for water by 2030](#) (uct.ac.za)

Funding

- [Britain's 'brutal' cuts to overseas aid put African science projects in peril](#) (theguardian.com)
- [Japan hands over training centre to boost South African water sector](#) (infrastructurenews.co.za)

Agriculture

- [South African government should focus on expansion of agricultural export markets](#) (agbiz.co.za)
- [Most food-insecure SA provinces have vast tracts of underutilised land, which could be a priority for agricultural expansion](#) (wandilesihlobo.com)

Technology and the 4th Industrial Revolution

- [South Africa unveils world class photonics prototyping facility](#) (engineerit.co.za)

Space Science and Astronomy

- [Space weather centre gets multi-million rand upgrade](#) (enca.com)

Education

- [Online learning is an opportunity to meet the needs of struggling students](#) (theconversation.com)
- [How a classroom maths test and intervention can help Grade 1 teachers](#) (uj.ac.za)
- Preparing for the future: University. See pages 26-27 of the digizine [Hola MaHigh-School](#) for an article by Jansie Niehaus, Executive Director of the NSTF, on how to prepare for the jobs of the future.

Infrastructure

- [South Africa's R1-trillion infrastructure drive gathers pace](#) (techcentral.co.za)
- [Why South Africa needs a new water agency](#) (theconversation.com)
- [DWS pledges to deal with sewer spillages into the Vaal River](#) (infrastructurenews.co.za)
- [Minister Sisulu hands over water trucks to drought-stricken municipalities](#) (infrastructurenews.co.za)
- [Gauteng Transport Dept has set aside R23 billion to develop roads](#) (eNCA)
- [Skills and collaboration needed to overcome growing water challenges](#) (infrastructurenews.co.za)

Medicine and Health

- [First ever national survey shows the extent of South Africa's TB problem](#) (theconversation.com)



The events posted below are correct as far as we could establish at the time of preparing this newsletter. Please check the relative websites for changes to dates and venues.

- South African Institute for [Advanced Constitutional, Public, Human Rights and International Law](#) (SAIFAC) is hosting a **10-part series on climate change** titled '*Climate Change Leadership: Bringing Science, People and Policy Together*'. The series is organised by a team of multi-disciplinary academics who have collaborated across the universities in Johannesburg. The seminar series covers **what climate change is, why it matters and what must be done to address it**. It commences online on 15 April 2021 at 17:30-18:30 (SA Time – GMT plus 2). RSVP to naomi@saifac.org.za
- [Nobel Prize Summit](#): "Our Planet, Our Future": Free online summit, April 26-28, 2021
- [Second International Congress of Biological Control](#) (ICBC2): Virtual congress 26-30 April 2021
- SAAFOST webinar: Information is abundant, critical thinking isn't, 27 April 2021. 17:00-18:00. Click [here](#) for more information and to register.
- [SPACEOPS 2021](#): 16th International Conference on Space Operations. Virtual Edition, 3-5 May 2021
- [African Utility Week and POWERGEN Africa](#), live event in Cape Town, 11-13 May 2021
- [ST-Africa2021](#), the sixteenth in an annual series of Ministerial Level Technology Research and Innovation Conferences hosted by Africa Governments: Virtual conference, 10–14 May 2021. View the [Advance Programme](#). Register [here](#).
- [Food Safety Summit SA 2021](#): Online event, 8-9 June 2021
- [10th SA AIDS Conference](#): Ending AIDS & Global Pandemics: Virtual event, 8-11 June 2021
- [XIX International Triple Helix Conference 2021](#): Hosted online by the University of São Paulo (USP), 16-18 June 2021. Theme: "Innovation for a sustainable world: science and technology to enhance the world for the future generations" in conjunction with the [SciBiz – Science Meet Business Conference](#). Submit an [abstract](#) by 30 April.
- [Grassland Society of South Africa Congress 56](#), Oudtshoorn, Western Cape, 26-30 July 2021
- [22nd Biennial ESSA Congress](#) of the Entomological Society of Southern Africa: Tshipise, Limpopo Province, 28 June - 1 July 2021
- [AI Expo Africa 2021](#) will run as a 3-day online live event 7-9 September 2021, followed by 30-day on-demand show. Click [here](#) for a free ticket and to register.
- [SAAFoST 24th Biennial Virtual Congress](#): 20-22 September 2021. [Click here to register](#).
- The [Bio2021 Conference](#) at Spier Wine Estate has been postponed to 26-29 September 2021

- Institute of Waste Management of Southern Africa (IWMSA) [Biennial Seminar and Exhibition “Landfill and Waste Treatment 2021”](#), Durban, 3-5 November 2021
- [2021 IMESA Conference](#): Cape Town, 17-19 November 2021
- [23rd International Congress of Zoology](#): Cape Town, 21-25 November 2021
- The 7th [World Conference of Research Integrity](#) Cape Town, has been postponed to 29 May – 1 June 2022.



Some articles included in the section below are opinion pieces. The opinions expressed in these articles do not necessarily reflect the views of the NSTF Executive Committee, Directors, Secretariat or Members.

Science Councils and Statutory Organisations

- [SABS drives the principles of transparency to eliminate Technical Barriers to Trade](#) (sabs.co.za)
- The [February 2021 edition of NECSA Today](#), the official newsletter of the South African Nuclear Energy Corporation is now available.
- [CSIR releases annual power sector statistics highlighting the role of all power generating technologies in 2020](#) (csir.co.za)
- [First Supercritical CO2 Encapsulation Facility in South Africa to be established at the CSIR](#) (dst.gov.za)

Space Science and Astronomy

- [Image of black hole shows magnetic fields around a black hole are strong enough to resist gravity](#) (wits.ac.za)
- [Test Rocket-Phoenix-1B Mark IIr launches successfully in the Overberg](#) (dst.gov.za)
- [DSI-NRF Funds HIRAX Dark Energy Telescope](#) (nrf.ac.za)
- [South Africa develops a transient-tracking “intelligent observatory”](#) (physicstoday.scitation.org)
- [The mysterious interstellar object 'Oumuamua was a chunk of planet from another solar system, a new study says](#) (businessinsider.co.za)
- [New bacteria lurking on ISS no space oddity, says scientist](#) (theguardian.com)
- [A magnetic spacecraft that can attract dead satellites has entered orbit](#) (businessinsider.co.za)

Palaeontology and Archaeology

- [Prehistoric killing machine exposed](#) (eurekalert.org)
- [Fossil lamprey larvae from South Africa overturn assumptions about vertebrate origins](#) (theconversation.com)
- [What Did the Stone Age Sound Like?](#) (sapiens.org)

Gender

- [Emerging Evidence Indicates COVID-19 Pandemic Has Negatively Impacted Women in Academic STEMM Fields](#) (nationalacademies.org)
- [Brief reflections on SA's agricultural economy and women inclusion](#) (wandilesihlobo.com)
- [NWU competition discovers and develops next generation of female engineers](#) (nwu.ac.za)

Zoology and Botany

- [There's so much noise that sea creatures can't hear themselves think](#) (dailymaverick.co.za)
- [Whale and dolphin brains are special, but for heat production, not for intelligence](#) (wits.ac.za)
- [Ground-breaking study reveals colonies of mole-rats communicate with each other in their own dialect](#) (up.ac.za)

Medicine and health

- [Strengthening Africa's medicine manufacturing capacity](#) (msn.com)
- [Study shows children with TB need continued care](#) (sun.ac.za)
- [South Africa needs to change direction on maternal health to solve child malnutrition](#) (theconversation.com)
- [NWU research could pave the way for more effective TB treatment](#) (unw.ac.za)
- [Five principles that should guide future DNA 'editing' in South Africa](#) (theconversation.com)
- [Scientists discover why the human brain is so big](#) (theguardian.com)

Epidemics – human and animal

- [Wits and Biovac partner to develop skills to produce viral vectored vaccines in South Africa](#) (wits.ac.za)
- [New SARS-CoV-2 variant may have emerged from the Eastern Cape after first wave, study reveals](#) (uct.ac.za)
- [Leading research institute says there should be no new trials of hydroxychloroquine for Covid](#) (groundup.org.za)
- [New online vaccination calculator shows how long it will take SA to reach herd immunity](#) (businessinsider.co.za)
- [What's unique about the body's response to the 501Y.V2 variant? Find out](#) (bhekisisa.org)
- [Rare COVID reactions might hold key to variant-proof vaccines](#) (nature.com)
- [COVID-19 third surge: 'Fraught with problems'](#) (uct.ac.za)
- [Some hand sanitizers made during the COVID-19 pandemic found to have high levels of a carcinogen: study](#) (businessinsider.com)
- [New Covid vaccines needed globally within a year, say scientists](#) (theguardian.com)
- [Insights from 'Unlocking COVID-19 current realities, future opportunities: Artificial intelligence in the time of COVID-19'](#) (sajs.co.za)

Environment

- [Plan to uproot 100 000 trees in Limpopo 'sacrilege', says baobab expert](#) (mg.co.za)

- [We must better protect wildlife to prevent future pandemics](#) (scidev.net)
- [Joburg electric vehicle initiative readies for e-buses, e-taxis](#) (itweb.co.za)

Energy

- [Energy storage: a key piece of the puzzle in SA's energy transition](#) (energize.co.za)
- [Light in the darkness: how South African schools should cut their electricity costs](#) (theconversation.com)
- [On-campus solar project provides an alternative energy option](#) (energize.co.za)
- [SA to get a new kind of power plant, which combines wind, solar and batteries](#) (businessinsider.co.za)
- [No Paraffin! Campaign](#) (assaf.org.za)

Infrastructure

- [Cement & Concrete SA established to drive the industry to new heights](#) (infrastructurenews.co.za)
- [Motheo construction saves a landmark billion litres of water in 24 months](#) (infrastructurenews.co.za)

Agriculture

- [A new way of processing cowpeas brings affordable nutrition to children](#) (theconversation.com)
- [South African National Standard that focuses on the welfare of chickens](#) (sabs.co.za)
- [Moringa oleifera in South Africa: A review on its production, growing conditions and consumption as a food source](#) (sajs.co.za)

Technology and the 4th Industrial Revolution

- [How technology offers a very real solution to SA's aging water infrastructure](#) (engineerit.co.za)
- [Exploring the Prospects of Using 3D Printing Technology in the South African Human Settlements](#) (assaf.org.za)
- [Used electronics present security concerns](#) (engineerit.co.za)
- [SA's satellite connectivity industry braces for shake-up](#) (itweb.co.za)
- [Ground-breaking technology set to save SA's waterways](#) (infrastructurenews.co.za)

Opportunities

- AYO Scaling Africa Series Challenge: In collaboration with the SA Innovation Summit, this series will identify and support South African digital and tech-based businesses, disrupting the ecosystem with novel ways to solve business and everyday needs of communities across Africa. For more information and to enter click [here](#).
- [Funding up for grabs in Startupbootcamp accelerator](#) (itweb.co.za). Applications close on 14 May 2021.
- Acquire cutting-edge Scicomm & Engagement expertise with Stellenbosch [online course](#): 14 June to 30 July 2021. The course will be followed by a practical project that will wrap up by the end of August 2021. Successful participation requires about 2–3 hours per week, as well as attendance of one 60-minute online discussion per week. The enrolment fee: R9 000 per person.

Apply on or before 21 May 2021. Contact Rolene Langford at rlm@sun.ac.za for assistance.

- AstroArt Competition: As part of its 200-year anniversary celebrations the [South African Astronomical Observatory](#) invites all foundation phase learners, grades R to 3, to enter their AstroArt competition. Deadline: 31 May 2021. [Read more.](#)
- Applications for the [2022-2023 Fulbright Foreign Student Program](#) are now open and, due to the global COVID-19 pandemic and revised academic calendar, will close on May 14, 2021. Fulbright is a competitive scholarship program that offers South African citizens and permanent residents the opportunity to complete a Master's or Doctoral degree at any accredited tertiary institution in the United States.
- The Council of Academies of Engineering and Technological Societies (CAETS) of which the SA Academy of Engineering is a member, has established a Communications Committee to find ways of helping the member academies improve the communication of policy, educational initiatives and the importance of engineering and technological sciences in society. Two annual CAETS Communication Prizes are awarded for the best short videos of preferably less than 5 minutes, explaining the societal importance of technological breakthroughs and engineering successes. South African entries will be judged by a national panel and the winners will be announced on 29 June 2021. The winning entries will then be submitted to CAETS for the international competition. Entries have to be submitted by 31 May 2021. [Read more.](#)
- Nature Careers funding opportunities: If you're looking for fellowships, research funding or scholarships, a new website from Nature Careers [offers thousands of funding opportunities](#). You can also find tips on how to write a winning grant application, find a funded internship in industry, bounce back from rejection, and lots more — [all for free](#).



- [Professor Roy Shires wins International Excellence in Endocrinology Award](#) (wits.ac.za)

About the NSTF

The National Science and Technology Forum (NSTF), established in 1995, is a broadly-representative stakeholder body for all science, engineering and technology (SET) and innovation organisations in South Africa, which seeks to influence policy formulation and delivery.

The NSTF Awards are unique in SA, recognising the outstanding contributions of individuals and groups to SET and innovation.

The science bursaries page provides information on bursaries and bursary providers for science, engineering and related studies.

Disclaimer

The NSTF has taken all practical measures to ensure that the material contained in this newsletter is correct. The NSTF reserves the right to make changes as it deems necessary.

Privacy

Registration details submitted to the NSTF will be treated confidentially and will only be used by NSTF to communicate with its members and subscribers.

For more information

www.nstf.org.za

E-mail: enquiries@nstf.org.za

Tel: [+27 12 841 3987](tel:+27128413987)

Non Profit Company Registration Number: 2007/029165/08

NPO Registration Number: 92042